

USDA/AMS Microbiological Data Program - Public Meeting



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FDA's Produce Surveys - Need for Data on the
Incidence of Microbial Contamination of Produce



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U.S. FOOD and DRUG ADMINISTRATION

Foodborne Illness and Fresh Produce

- Increased Incidence over the Past Several Years
 - Increased consumption
 - Change in distribution pattern - global supply
 - Increase in vulnerable population
 - New pathogens and increased virulence of pathogens

Outbreaks 1996-2000

■ Processed Foods	15
■ Produce	113
■ Shell Eggs	138
■ Seafood	91
■ Sprouts	13
■ Total	370

Some Products Associated with Outbreaks

- Lettuce
- Onions
- Tomatoes
- Seed sprouts
- Melons
- Green onions
- Unpasteurized juices
- Carrots
- Berries
- Celery
- Basil
- Parsley
- Cilantro
- Mamey
- Coconut milk

Pathogenic Microorganisms of Concern in Fresh Produce

- **Bacteria**
 - *Salmonella* species
 - *Shigella* species
 - *Escherichia coli*
 - *Plesiomonas shigelloides*
 - *Aeromonas hydrophila*
 - *Vibrio* species
 - *Clostridium botulinum*
 - *Listeria monocytogenes*
 - *Bacillus cereus*
- **Parasites**
 - *Entamoeba histolytica*
 - *Giardia lamblia*
 - *Cryptosporidium parvum*
 - *Cyclospora cayetanensis*
- **Viruses**
 - Norwalk-like virus (NLV)
 - Hepatitis A Virus (HAV)

Produce Safety

- October 1997 - Imported and Domestic Produce Safety Initiative
- Guidance on GAPs and GMPs
- Outreach and education
- Produce surveys to obtain baseline data on level of contamination
 - 1999 -2001: two imported produce survey
 - 2001: domestic produce survey

Produce Surveys

- Identify causes - fine tune GAPs and GMPs
- Focus Research aimed at reducing foodborne illness
- Assess efforts to reduce contamination of produce

Research

- Investigate potential sources of contamination (e.g., water, manure)
- Improved detection methods
- Sampling strategies for low-level microbial contamination
- Study effects of post-harvest practices on pathogen attachment, infiltration, and survival/growth

Research

- Prevention techniques -- avoidance, reduction, elimination -- throughout the food chain
- Surveys will help focus research, which can then serve as the scientific basis for preventive measures
 - Guidance to industry - GAPs - Food Code
 - Guidance to consumers - Home handling

IMPORTED PRODUCE SURVEY 1999-2000



CRITERIA for Selection of Commodities

- Epidemiological Outbreak Data
- Structural Characteristics
- Growing Conditions
- Processing
- Consumption

Imported Produce Survey 1999-2000



- 1000 samples - 125 of 8 products
 - Broccoli, cantaloupe, celery, cilantro, loose-leaf lettuce, parsley, scallions, strawberries
 - Culantro, tomatoes
 - One sample - 10 subsamples (one lb or one head/bunch)
- Initiated in March 1999

Imported Produce Survey 1999-2000

- Pathogens tested for and overall results
 - *E. coli* 0157:H7, *Salmonella*, *Shigella*
 - Total coliforms, APC
 - 95.6% **free of targeted pathogens**
 - NO *E. coli* 0157:H7
 - *Salmonella* - 80% of violations

IMPORTED PRODUCE SURVEY 1999-2000

PRODUCT	# sampled	# positive	Positive (% of # sampled)	Positives (% of total)
broccoli	36	0	0.0	0.0
cantaloupe	151	11	7.3	1.1
celery	84	3	3.6	0.3
cilantro	177	16	9.0	1.6
culantro	12	6	50.0	0.6
lettuce	116	2	1.7	0.2
parsley	84	2	2.4	0.2
scallions	180	3	1.7	0.3
strawberries	143	1	0.7	0.1
tomatoes	20	0	0.0	0.0
Totals	1003	44	-----	4.4

Follow Up Imported Survey 2001



- | Focuses on
 - | Cilantro Culantro
 - | Cantaloupe Tomatoes
- | Initiated January 2001
- | Interim Results (as of 7/21/2001)
 - | 0 of 51 cantaloupe - 1 of 31 Cilantro (Salmonella)
 - | 1 of 164 tomatoes (Salmonella)
 - | 0 of 7 culantro

Domestic Produce Survey 2000-2001



- | Began May 2000
- | 1000 samples - 125 of 8 commodities
- | Domestic tomatoes (replaces imported broccoli)

Domestic Produce Survey 2000-2001

- Interim Results (as of 11/30/2001)
 - 972 Samples collected
 - 959 Samples analyzed
 - 12 samples positive
 - 6 for *Shigella*; 6 for *Salmonella*
 - 1.3% Violation rate
 - None positive for *E. Coli* 0157:H7

Domestic Produce Survey 2000-2001

- Results
 - Percentage of Samples Positive for Pathogen

■ Cantaloupe	5 of 162	3.1%
■ Celery	0 of 111	0.0%
■ Cilantro	2 of 76	2.7%
■ Green onions	3 of 89	3.7%
■ Lettuce	1 of 128	0.8%
■ Parsley	1 of 82	1.2%
■ Strawberries	0 of 127	0.0%
■ Tomatoes	0 of 184	0.0%